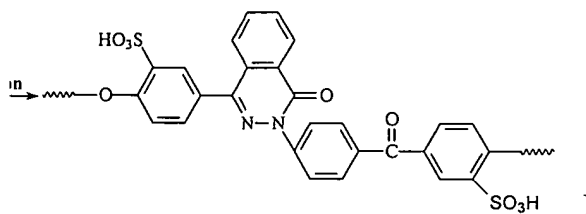


THE CLAIMS

The claims of the application, as amended, are:

1. – 14. (Canceled)

15. (Currently amended) Sulfonated poly(phthalazinones) consisting essentially of units of structural formula I.

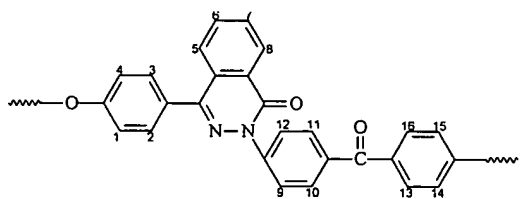


wherein the degree of sulfonation is in the range of 0.6 to 1.0 \pm 0.2.

16. (Currently amended) Sulfonated poly(phthalazinones) consisting essentially of units of structural formula I as defined in Claim 15, in the form of a membrane.

17. (Canceled)

18. (Currently amended) A process for the preparation of sulfonated poly(phthalazinones) consisting essentially of units of structural formula I as defined in claim 15, and having a degree of sulfonation in the range of 0.6 to 1.0, comprising reacting poly(phthalazinones) of formula II



at room temperature with a sulfonating agent, wherein the sulfonating agent is a mixture of 95-98% concentrated sulfuric acid and 27-33% fuming sulfuric acid with different acid ratios in the range of fuming sulfuric acid to concentrated sulfuric acid of 5/5 to 7/3, wherein the degree of sulfonation (~~DS~~) is controlled by varying the ratio of concentrated sulfuric acid to fuming sulfuric acid and the reaction time.

19. - 24. (Canceled)

25. (Previously presented) A process according to claim 18, including the additional step of casting the sulfonated poly(phthalazinones) to form a membrane.

26. - 32. (Canceled)

33. (Currently amended) A membrane electrode assembly for use in a fuel cell comprising: (a) an anode, (b) a cathode; and (c) a solid polymer electrolyte membrane between said anode and said cathode, said solid polymer electrolyte membrane comprising a sulfonated poly(phthalazinone) consisting essentially of units of structural formula I as defined in claim 15, and having a degree of sulfonation in the range of 0.6 to 1.0.

34. (Currently amended) A method of producing a fuel cell, comprising the steps of forming a solid polymer electrolyte membrane using the sulfonated poly(phthalazinone) consisting essentially of units of structural formula I as defined in claim 15, and having a degree of sulfonation in the range of 0.6 to 1.0; and assembling said solid electrolyte membrane between an anode and a cathode to provide a membrane electrode assembly.